

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2004/021714

## Box No. I . Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the International application and necessary to the claimed invention, the International search was carried out on the basis of:

a. type of material

☒

a sequence listing

☐

table(s) related to the sequence listing

b. format of material

☒

in written format

☒

in computer readable form

c. time of filing/furnishing

☒

contained in the international application as filed

☒

filed together with the international application in computer readable form

☐

furnished subsequently to this Authority for the purpose of search

2. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

## INTERNATIONAL SEARCH REPORT

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**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 C07K14/315

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, MEDLINE, WPI Data, Sequence Search

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GUBBA SIDDESWAR ET AL: "Expression and characterization of group A Streptococcus extracellular cysteine protease recombinant mutant proteins and documentation of seroconversion during human invasive disease episodes" INFECTION AND IMMUNITY, vol. 66, no. 2, February 1998 (1998-02), pages 765-770, XP002304245 ISSN: 0019-9567 page 765 - page 167 ----- -/--	1-71

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*G\* document member of the same patent family

Date of the actual completion of the international search

8 November 2004

Date of mailing of the international search report

19/11/2004

Name and mailing address of the ISA

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Authorized officer

Young, C

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>DATABASE EMBL Streptococcus pyogenes SpeB  1 June 2001 (2001-06-01),  WATANABE Y: "SpeB exotoxin"  XP002304250  retrieved from EBI  Database accession no. Q9AJD2  abstract</p> <p>-----</p>	35-44, 50-69,71
X	<p>MUSSER JAMES M ET AL: "Substitution of  cysteine 192 in a highly conserved  Streptococcus pyogenes extracellular  cysteine protease (interleukin 1-beta  convertase) alters proteolytic activity  and ablates zymogen processing"  INFECTION AND IMMUNITY,  vol. 64, no. 6, 1996, pages 1913-1917,  XP002304246  ISSN: 0019-9567  the whole document</p> <p>-----</p>	1-71
X	<p>KAGAWA TODD F ET AL: "Crystal structure  of the zymogen form of the group A  Streptococcus virulence factor SpeB: An  integrin-binding cysteine protease"  PROCEEDINGS OF THE NATIONAL ACADEMY OF  SCIENCES OF USA, NATIONAL ACADEMY OF  SCIENCE. WASHINGTON, US,  vol. 97, no. 5,  29 February 2000 (2000-02-29), pages  2235-2240, XP002149908  ISSN: 0027-8424  the whole document</p> <p>-----</p>	1-71
X	<p>FAGIN URSULA ET AL: "Exclusion of  bioactive contaminations in Streptococcus  pyogenes erythrogenic toxin A preparations  by recombinant expression in Escherichia  coli"  INFECTION AND IMMUNITY,  vol. 65, no. 11, 1997, pages 4725-4733,  XP002304247  ISSN: 0019-9567  the whole document</p> <p>-----</p>	1-71
X	<p>KAPUR VIVEK ET AL: "A conserved  Streptococcus pyogenes extracellular  cysteine protease cleaves human  fibronectin and degrades vitronectin"  MICROBIAL PATHOGENESIS,  vol. 15, no. 5, 1993, pages 327-346,  XP002304248  ISSN: 0882-4010  page 340 - page 341</p> <p>-----</p>	1-71
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# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US2004/021714

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 98/49311 A (NOVO ENZYME CORP DE ; BORGFORD THOR (CA)) 5 November 1998 (1998-11-05) the whole document -----	1-71
A	KING JONATHAN ET AL: "Thermolabile folding intermediates: Inclusion body precursors and chaperonin substrates" FASEB JOURNAL, vol. 10, no. 1, 1996, pages 57-66, XP002304249 ISSN: 0892-6638 the whole document -----	1-71
A	TAN S: "A MODULAR POLYCISTRONIC EXPRESSION SYSTEM FOR OVEREXPRESSING PROTEIN COMPLEXES IN ESCHERICHIA COLI" PROTEIN EXPRESSION AND PURIFICATION, ACADEMIC PRESS, US, vol. 21, 2001, pages 224-234, XP001087869 ISSN: 1046-5928 the whole document -----	1-71

# INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/US2004/021714

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9849311	A	05-11-1998	AU 7023798 A	24-11-1998
			CA 2288943 A1	05-11-1998
			WO 9849311 A2	05-11-1998
			EP 0977862 A2	09-02-2000
			JP 2001523961 T	27-11-2001
			US 2004009551 A1	15-01-2004
			US 6593132 B1	15-07-2003
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